REMARKS

By the above amendments, claims 1 and 2 are amended, and new claims 10-12 are added to place this application in condition for allowance. Currently, claims 1-3 and 10-12 are before the Examiner for consideration on their merits.

In review, claims 1-3 stand rejected under 35 U.S.C. § 103(a) based on JP58-067854 to Nagano. In making this rejection, the Examiner alleges that Nagano teaches a composition that overlaps that which is claimed, and that any differences are obvious variants. The Examiner also contends that the processing of Nagano is the same or similar to Applicants' processing, and therefore, the property regarding the low angle boundary rate would be inherently found in Nagano.

In light of the new rejection, claims 1 and 2 have been revised to show that the structure of the alloy of the invention is not the same as Nagano, and that the rejection must be withdrawn as applied to claims 1-3. In this regard, each of claims 1 and 2 now recite that the low angle boundary rate of 4% or more is obtained by a solution treatment at 900 °C or more. It should be noted initially that the claimed solution treatment imparts a different structure than that found in the alloy of Nagano, and this difference precludes the Examiner from relying on Nagano to further reject the claims.

New independent claims 10 and 11 are similar to claims 1 and 2 in that they define the same crystal structure, which is formed by the solution treatment and a further heat treatment for precipitation. Support for these claims may be found in the specification on page 16, lines 18-25.

Turning now to the rejection, it is asserted that Nagano does not teach the claimed structure since the Nagano processing is not the same as that which produces the claimed low

angle boundary rate. On page 5, lines 8-15 of Nagano, the prior art is described as "Products, such as plates, pipes, etc., that are made from 30% Cr-60% Ni alloys are conventionally produced by performing hot working, followed by 30% or less cold rolling, and, as the final heat treatment, annealing at a temperature from 950 to 1150 for a short retention time of 2 to 30 minutes or thereabouts. It is widely accepted view that, with this type of steel grade, the carbide precipitation after the annealing must be inhibited as much as possible so as to prevent sensitization in the SR treatment. "

In contrast to the prior art characterization, page 6, line 11 to page 7, line 1 of Nagano teaches the following. If the cold working conducted prior to the annealing is implemented with a degree of processing that is higher than that of the existing method, an extremely large number of slip bands are created in the alloy. If , in this condition, annealing is carried out at 850 °C or lower, that is, at a temperature that is considerably lower than the prior art, a large quantity of carbide is dispersed and precipitated finely inside grains in the alloy with in a short time, which is in exact contrast to the case with the prior art. That is, the prior art process wants to avoid carbide precipitation, whereas Nagano's process seeks carbide precipitation. This precipitation in Nagano occurs as a result of the following. Because the annealing temperature is decreased, the C solid solubility decreases, which increases the quantity of carbide to be precipitated.

From this description, the only conclusion to be drawn is that the Ni-base alloy disclosed in Nagano is characterized in that the cold working of high reduction rate is applied to enable slip bands to be created so as to function as the nuclei for the carbide precipitation, whereby the lower temperature annealing, i.e., 850 °C or less, that is less than the temperature used in the conventional method facilitates the carbides to finely precipitate inside grains to suppress the generation of C depletion layers at the grain boundaries. This improves the resistance to SCC.

While it is admitted that the invention and Nagano both seek to solve the problem of SCC corrosion, Nagano goes about solving this problem in a different manner than Applicants and produces an alloy having a different structure. Whereas Nagano employs a process that promotes the intragranular precipitation of carbides as part of the end structure of the Ni-based alloy, this is entirely different from the methodology employed in the present invention.

The present invention involves the production of a Ni-based alloy having the claimed composition and structure as a result of a solution treatment, which is not similar or the same as that taught by Nagano. According to the invention, the claimed alloy has a crystal structure that is the result of cold working with a high reduction rate and a solution heat treatment. The solution heat treatment is shown in Tables 2 and 4, e.g., a range of 900 to 1200 °C. This heat treatment is not the same as Nagano, and is, in fact, more similar to the prior art heat treatment discussed in Nagano. In Nagano, a low temperature annealing step is performed wherein the heat treatment temperature ranges from 675 to 850 °C. In contrast, claims 1 and 2 now define a solution treatment step to form the claimed crystal structure, wherein the temperature is 900 °C or more.

To reiterate, Nagano pertains to "the Ni-base alloy with excellent resistance to SCC having the crystal structure where the carbides are dispersed and finely precipitated inside grains by applying the cold working with high reduction rate and the low temperature annealing." This is in direct contrast to the present invention which pertains to "the Ni alloy with excellent resistance to IGSCC having the crystal structure of a low angle boundary rate of 4% or more and being subjected to the solution treatment which is obtained by applying the cold working with high reduction rate and the solution treatment."

With the amendments to claims 1 and 2, the Examiner now must address the question of whether the process of Nagano and the claimed invention are so similar or the same that the

position that the claimed structure would be inherent in Nagano. It is respectfully contended that such as stance is not supported by a fair reading of the teachings of Nagano and the invention. Nagano employs a low temperature treatment to produce a carbide precipitation in the alloy structure. This is not the same as method employed to produce the alloy of claims 1 and 2, wherein the low angle boundary rate of 4% or more is produced by a solution treatment.

While the temperature used in Nagano may be similar to that now claimed, the Examiner does not have a basis to conclude that the similarity in temperatures still permit the inference that the claimed structure is found in the Nagano alloy. As noted above, Nagano clearly shows that the low temperature annealing step is different from the prior art solution treatment wherein carbide precipitation is to be avoided. Nagano's discovery is that if the prior art technique is altered by increasing the degree of cold reduction and the cold worked material is annealed at a certain temperature, an improved alloy structure is attained. Whereas Nagano seeks to create a precipitated structure, Applicants employ a solution treatment wherein carbides are fully solutioned in matrix to obtain the low angle boundary rate of 4%. As explained on page 16, lines 18-25, a second heat treatment as is done in the prior art produces precipitation of carbides. This implies that the carbides are not precipitated as a result of the solution treatment, and this further substantiates the argument that the processing of Nagano is not the same as the invention, and therefore, the alloy of Nagano cannot inherently have the claimed structure.

In light of the amendments to claims 1 and 2, and the arguments above, it is contended that the rejection of the claims cannot stand since the inherency position set forth in the rejection is flawed.

Moreover, there is no other basis for the Examiner to assert that one of skill in the art would be taught to alter the annealing treatment of Nagano and arrive at the invention. If

anything, Nagano expressly teaches away from such a modification given the aim to avoid the high temperature treatment of the prior art that avoid the precipitation of carbides.

New claims 10-12 are also patentably distinguishable over Nagano. These claims define an alloy that, after solution treatment, is subjected to a heat treatment for precipitation to induce carbides to precipitate at the grain boundaries, see lines 18-25 of page 16. This results in an inhibition of the sensitization to thereby obtain excellent resistance to IGSCC. This heat treatment also serves to recover Cr in the Cr depletion layer at the grain boundaries so that the resistance to SCC improves.

The process of the invention of claims 10 and 11 does not accompany the intragranular precipitation of carbides as in Nagano, and Nagano cannot inherently be said to have the alloy structure of claims 10 and 11.

While claims 10 and 11 define a precipitation, it is not the intragranular precipitation of Nagano, and the Examiner has no legitimate basis to conclude that just because Nagano has a precipitated structure, and claims 10 and 11 define a precipitated structure, that the structures are the same. As pointed out above, the solution treated alloy of the invention does not the same structure as Nagano since the processes of the invention and Nagano are not the same. Thus, one can only conclude that the alloy of the invention when subjected to the heat treatment of claims 10 and 11 would not be the same as the alloy of Nagano. Thus, claims 10 and 11 are also patentable over Nagano.

In summary, it is contended that Nagano fails to establish a *prima facie* case of obviousness against claims 1, 2, 10, and 11. Claims 3 and 12 are patentable by reason of their respective dependency on claim 1 and 10.

Accordingly, the Examiner is requested to examine this application in light of this response and pass claims 1-3 and 10-12 onto issuance.

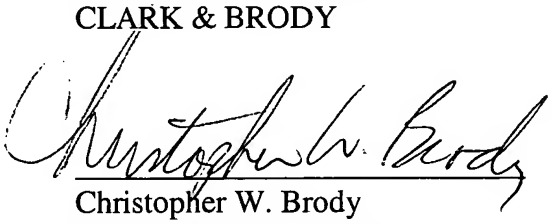
If the Examiner believes that an interview with Applicant's attorney would be helpful in expediting the allowance of this application, the Examiner is respectfully requested to telephone the undersigned at 202-835-1753.

The above constitutes a complete response to all issues raised in the Office Action dated April 28, 2006

Again, reconsideration and allowance of this application is respectfully requested.

Applicant respectfully submits that there is no fee required for this submission, however, please charge any fee deficiency or credit any overpayment to Deposit Account No. 50-1088.

Respectfully submitted,
CLARK & BRODY



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